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THE ORIGIN AND RANGE OF THE ESKIMO LAMP¹

WALTER HOUGH

The conditions which have regulated the migrations of various peoples in the long process of populating the earth are many. Of these the food supply or the quest for food has been mentioned as the most potent migration factor. It would seem, however, that in relation to primitive migration the acquaintance with fire and the possession of means to make it readily mark the era of movements of peoples, especially into zones of unequal temperature.

That the fire art is fundamental is borne in upon every student of the subject, and it is gratifying to be able to point out how the utilization of fire has affected a people so well known as the Eskimo.

These people inhabit the littoral of the continent from the Aleutian islands to Labrador and Greenland. Traces of their migration have been met with at the highest north of explorers. In this singularly inhospitable country, under conditions so unfavorable as to excite wonder, the Eskimo have flourished and multiplied, forming groups of families or villages at intervals along the extensive shore line.

A few of the drawbacks incident to the spread of a people into the environment of the Eskimo may be mentioned. There are the cold, the long nights, the hardships of travel, the scarcity of wood, and, paradoxical as it may seem, the difficulty of obtaining drinking water. The Arctic, with its world of congealed water, shares with the desert the lack of available water to drink. Thus, while all the other disadvantages might be overcome—the cold by fur clothing, the non-conducting house, the fat food derived from the abundant game, and the difficulties of travel by travel inventions—yet the problem of water would be prohibitive through most of the year without means of melting ice and snow.

There is a household utensil possessed by the Eskimo inseparable from his domestic life and indispensable to his well-being.

¹ Published by the permission of the Secretary of the Smithsonian Institution. A monograph entitled the Lamps of the Eskimo, by the author, will appear in the Report of the U. S. National Museum for 1896.

This is the lamp, by which he is unique on this continent in possessing. In the manner of using the lamp, also, he is unique in all the world.

The typical Eskimo lamp is a shallow dish of soapstone, with the outline of the gibbous moon. It is hollowed out on the upper surface as a reservoir, to contain oil. The rear of the lamp is curved and is bounded by a low wall; the reservoir slopes gradually up to the edge upon which the wick is laid. This edge is straight. The wick is of moss, rubbed to powder between the hands, and carefully laid in a thin line along the wick edge of the lamp. The oil in the reservoir stands just at the lower margin of the wick, by which it is absorbed. The wick is lighted at one end and the flame is guided across the edge. The flame is about two inches high, and is clear and smokeless if the wick is properly cared for.

The lamp is set on a wooden block or stool and can be tipped forward to give a uniform supply of oil to the wick. The oil is supplied by blubber melted by the heat of the lamp. With this lamp the Eskimo lights his house during the period of darkness. With the light is given out considerable warmth. Over the flame hangs the cooking-pot, and above all, in the ascending heated air, is a rack upon which are placed clothes to be dried. Near by snow is being melted for drinking water. It will be noticed that the lamp has several functions, which have been differentiated among civilized people.

The lamp is peculiarly the possession of the women. Each head of a family must have a lamp, though two or more families may live in the same hut. The Eskimo have no phrase expressing greater degree of misery than "a woman without a lamp." After the death of a woman her lamp is placed upon her grave.

The Eskimo not only hunts for food for himself and his family, but for the most important member of his household, the lamp, which eats like a native. Often the family will go on short rations in order that they may have heat and light.

The lamp is also useful in the various arts carried on by the Eskimo. It has naturally entered into his folklore and religion.

What can be the meaning of the dependence of the Eskimo upon his lamp? An important fact of this kind must have an

explanation of important bearing upon the life and migration of a people to which it applies.

Since it is true that the Eskimo is dependent upon his lamp for his very existence, it seems safe to bring forward as a corollary that his migration into his present home was subsequent to the invention of the lamp. Further, the lamp seems to have determined the distribution of the Eskimo race.

The invention of the lamp would be the initial of the movement to the northern coasts, where the Eskimo has spread twenty degrees higher than any other race around the Arctic circle, penetrating into the long night of winter, while most other tribes have checked their advance well within the circle of illumination.

Here, then, we have an example germane to the thesis that peoples began to spread freely over the earth in search of new homes after the discovery of the means of kindling fire anew at will.

This thesis holds that the relation of fire to man is one of necessity; that man as man without fire is almost inconceivable; also that there seem three stages in man's attitude toward fire: the first, a knowledge of fire as a phenomenon; the second, the taking, using, and preservation of fire; and the third, the kindling of fire at will by friction. There are facts which illustrate the second stage, but these need not be discussed at this place.

The third stage reaches into the present, and the Eskimo, in common with all other tribes in an uncivilized state, know the art of fire friction of wood, and have beside a knowledge of the production of fire from flint and pyrites.

The Eskimo inventive genius has been also applied to the improvement of the simple method of making fire by the rotation between the hands of a stick of wood pressed upon another piece of wood. He has made a mouthpiece or handpiece, with a socket for the upper end of the drill, and he revolves the drill with a cord attached to a bow or by alternately pulling the ends of a cord. In employing this four-part drill he is likewise almost unique in America, and has good claim to the invention.

It is not meant to include in the word invention the element of time, but rather to think of an invention as the product of a development through the working of the human mind and the silent stress of the environment.

The invention of the Eskimo lamp must have taken place in the priscan home of this people, where the environment rendered the use of such utensil necessary—that is, in a cold climate with winter darkness. This accords with theories of the origin of the Eskimo either in the interior of Alaska or in Siberia.

It should be mentioned, however, that the lamp is useful only with fats of high fuel value, such as are furnished by fish, seals, and other aquatic mammals, while the reindeer and other land animals furnish little fat and that of low fuel value.

The writer inclines to believe that the Eskimo lamp had its origin on some seacoast, beginning with rude beach stones having natural concavities like those found by Dr W. H. Dall on the village sites of the ancient Aleuts, and with migrations into higher latitudes the lamp was further differentiated in obedience to the demands of the environment.

As to the independent origin of the Eskimo lamp, it is difficult to say with any degree of certainty, so many questions are involved, and there is naturally a scarcity of data leading to conclusive proof.

The grease lamps of northern Europe were formerly of stone. It might be possible that the first contact of the Europeans introduced the lamp to the Eskimo, but the earliest accounts of this people always mention this household belonging. Excavations on old village sites also always yield specimens of the lamp.

The lamps of northern Asia, and in fact of all Asia, are simple saucers which are burned with a pith wick or a wick floating in oil. These lamps appear to intrude into the Eskimo area at the narrow portion of Bering straits, but whether the lamps of Alaska originate from the contact with the old world must be left for future consideration. It must be said that lamps administered so differently seem to have no genetic relationships.

There is enough variation in the form of the lamps to admit of assigning them to various tribes. This may be clearly brought out by an examination of the large collection of lamps in the National Museum.

The tribal variations, however, must be subordinated to the more profound modifications of latitude and temperature. Thus the lamps near or above the circle of illumination are more complete and effective than those to the south, where there is a greater

amount of light and higher temperature. It is possible, then, to say with some degree of accuracy the latitude from which a certain lamp comes without any other knowledge of the locality of the specimen.

For example, the modifications of the lamp by latitude in the Eskimo area may be shown by tracing the forms from southern Alaska to Labrador.

Beginning with the Aleuts, latitude 55° , we find the most primitive lamps, which might well stand at the head of the developmental series. These are beach stones with natural concavities adapting them for use as lamps. They are from ancient sites. Other Aleutian lamps are beach pebbles slightly modified, while a few have been rudely worked out to oval outline. The general feature which strikes one, however, is the narrowness of the wick edge, showing small demand for heat and light at this latitude, where also the influence of the Japan warm current is felt, and there is also some fuel for open fires. It may be remarked that the wick edge is the important feature of the lamp upon which this study is based, a narrow wick edge giving little light and heat and a wide one giving much light and heat.

At Bristol bay, latitude $58^{\circ} 50'$, the lamps are oval or sadiron-shaped, finely worked from hard stone. Though some of the lamps are large and heavy, the wick edge is narrow.

North of Bristol bay, on the vast tundra of the Alaskan rivers, the lamp gradually assumes a round outline and resembles the bowl or saucer lamps of Asia. The material is of baked clay, and the moss wick is administered on a small arc of the edge.

At St Lawrence island, in latitude $63^{\circ} 30'$, we find a well developed group of pottery lamps. They are shallow, oblong dishes, the largest having a wick edge about one foot wide. They have a narrow ridge running along the floor of the reservoir parallel with the wick edge, like the lamps of the Chuckchi, on the opposite Siberian shore. This ridge crops out again in Greenland. The interesting lamp collected by General A. W. Greely in latitude 82° shows this feature.

North of Norton sound, in the peninsula which lies between that sound and Kotzebue sound, between $64^{\circ} 45'$ and $66^{\circ} 30'$, the lamps assume an oval form, but are large and well developed.

At Point Barrow, $71^{\circ} 18'$, the lamp is of the typical elliptic

shape. The wick line of the fine specimen in the National Museum is 17 inches in length. Much larger lamps are found.

Very much farther east, at Repulse bay, latitude 68° , the lamp resembles that of Point Barrow in shape. The specimen collected by Hall, in the National Museum, measures 26 inches along the wick edge.

The lamps of Cumberland gulf, 66° , and those of Labrador, 60° , are also quite large. The southward extension of the wide lamp in Labrador is due to the strong southward dip of the isotherms.

Without giving further examples, it may be said that the lamps of Greenland from south to north fall under the same law of development in latitude.

The conclusions reached are that the Eskimo, before he migrated from his pristine home, had the lamp, this utensil being a prerequisite to migration into high latitudes; that one of the most important functions of the lamp is for melting snow and ice for drinking water; that the lamp is employed for lighting, warming, cooking, melting snow, drying clothes, and in the arts, thus combining in itself several functions which have been differentiated among civilized peoples; that the architecture of the house is related to the use of the lamp—the house is made non-conducting and low in order to utilize the heated air; that the lamp is a social factor, peculiarly the sign of the family unit, each head of the family (the woman) having her lamp; that the invention of the lamp took place on some seacoast, where fat of aquatic mammals of high fuel value was abundant, rather than in the interior, where the fat of land animals is of low fuel value; that the typical form of the lamps arises from an attempt to devise a vessel with a straight wick edge combined with a reservoir, giving the vessel an obovate or ellipsoidal shape.

Finally, from observation of lamps from numerous localities around the Eskimo shore-line, it is concluded that lamps in low latitudes below the circle of illumination are less specialized than those of higher latitudes. For instance, the lamps of southern Alaska have a wick edge of two inches, while those of Point Barrow and northern Greenland have a wick edge of from 17 to 36 inches in width. It becomes possible, then, to say with some certainty the degree of north latitude to which a lamp

appertains, light and temperature being modifying causes. Driftwood, the fuel supply, and the presence or absence of materials from which to construct the lamp must also be considered. The cause of the large lamps coming down so far in latitude on the east is on account of the dipping of the isotherms. The lamps of Labrador are a case in point. There are three kinds of Eskimo lamps—the house lamp, the small lamp for temporary use by hunters and travelers, and the mortuary lamp.

FURTHER NOTE ON ESKIMO BOOT-STRINGS.—My note on the above subject, published in the *Anthropologist* for January, has already begun to elicit interesting information. Fru Signe Rink, the widow of the famous Eskimo scholar, Dr Henry Rink, writes me from Christiania that in Danish Greenland, both north and south, the waterproof boots are tied in precisely the way I described—that is, with a single string crossing the toes, drawn through loops on each side of the sole, and crossed round the ankle, though apparently they were sometimes made with only one loop on each side. Poor and shiftless people in the colonies sometimes neglect the strings entirely. She writes that the waterproof boots are universally worn, especially by men and boys and women who are too old to care for finery in dress. The boots of white-tanned sealskin, often dyed bright colors, with which we are so familiar in our museums, are worn only by the women of fashion.

The loops for the boot-strings are not made of separate bits of leather, as at Point Barrow, but are simple eyelets pierced through the edge of the sole itself. The sole is sewed on wet to the upper, and shrinks so much in drying that the eyelets must be kept open with little sticks or something of the sort.

It will be remembered that Fru Rink was born in Greenland, though of Danish parents, and passed her childhood and much of her married life in that country.

JOHN MURDOCH.